

## ABSTRACT

A magnetic field detector having a reference magnetoresistive element and a magnetic field detecting magnetoresistive element. The reference magnetoresistive element and the magnetic field detecting magnetoresistive element each has a stack structure including an antiferromagnetic layer, a fixed layer of a ferromagnetic material with the direction of magnetization fixed by the antiferromagnetic layer, a nonmagnetic layer, and a free layer of a ferromagnetic material with the direction of magnetization adapted to be changed by an external magnetic field. The reference magnetoresistive element is such that the direction of magnetization of the fixed layer and the direction of magnetization of the free layer in the nonmagnetic field are parallel or antiparallel to each other, and the magnetic field detecting magnetoresistive element is such that the direction of magnetization of the fixed layer and the direction of magnetization of the free layer in the nonmagnetic field are different from each other. Thus, it is possible to provide a magnetic field detector capable of singly calibrating the sensitivity and the resolution of the detector whenever required.